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Taxonomy and Geographical Distribution of Southwestern Japanese Species of *Grammatomya*, *Dysmea* and *Kermadysmea* (Bivalvia : Psammobiidae)

By

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松隈明彦*：西南日本産ハスメヨシガイ属，ハナヤカマスオガイ属，スダレヨシガイ属（シオサザナミガイ科二枚貝）の分類と分布

Grammatomya DALL, 1898, *Dysmea* DALL, BARTSCH & REHDER, 1938, and *Kermadysmea* POWELL, 1958 are genera or subgenera of the Psammobiidae in tropical to subtropical waters of the Indo-Pacific. Shells of *Gari* (*Garmmatomya*) have strong radial ribs in the posterior slope and fine oblique ridges which run from the antero-dorsal margin to the ventral margin. *G.* (*G.*) *kurodai* (HABE, 1981) has oblique ridges which are distinctly separated by radial ribs in the posterior slope. Although HABE (1981) compared his species with *G.* (*G.*) *squamosa* (LAMARCK, 1818) with oblique ridges which are concordant with the radial ribs in the posterior slope, *G.* (*G.*) *abrupta* (DESHAYES, 1855) and *G.* (*G.*) *pulcherrima* (DESHAYES, 1855) are more closer to *G.* (*G.*) *kurodai*. *Dysmea* species have a large shell with smooth outer surface except concentric lamellae in the posterior slope. In Japan, only two species have been known, i.e., *Dysmea occidens* (GMELIN, 1791) and *D. oriens* (DESHAYES, 1855) but some workers, e.g., HABE & KOSUGE, 1966 and HABE, 1977, considered that the latter is conspecific with the former. *Kermadysmea* is a very small genus and includes, at present, only the single species, *K. galatheae* POWELL, 1958. This species is apparently antitropically distributed to the Kermadec Islands and Okinawa Islands, southwestern Japan. The outer surface of *K. galatheae* is ornamented with concentric, rounded ribs. Each of these ribs is made up of a series of minute half-rings. This paper describes living and fossil specimens of *Dysmea occidens, D. oriens*, *Kermadysmea galatheae*, *Gari* (*Grammatomya*) *squamosa, G.* (*G.*) *pulcherrima pulcherrima* and *G.* (*G.*) *pulcherrima kurodai* from south western Japan.

HABE (1976) described a tellinacean from the Ombase submarine reef, near Kozushima Islet, Izu Islands, under the name of *Kermadysmea nishimurai*. *Kermadysmea nishimurai* is similar to *Psammotaea aenigmatica* VIADER, 1951 from Mauritius. *Kermadysmea nishimurai* has a cruciform muscle, anterior and posterior laterals in the right valve and a small but distinct nymph. Neither *K. nishimurai* nor *P. aenigmatica* have concentric ribs composed of a

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series of minute riblets of half-rings, but have solid concentric ribs like those of the venerid *Paphia euglypta* (PHILIPPI) from the western Pacific. *Kermadysmea nishimurai* has an obliquely erected pallial sinus and lacks a gape at either end. These traits are not characteristic of the family Psamombiidae and they seem to require not only generic but also familial reassignment.

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Abbreviations Used for Institutions and Collections

IC: Mr. Hiroshi ITO's private collection, Tokyo.
KAC: Mr. Toshio KANAZAWA's private collection, Tokyo.
KOC: Mr. Yasuo KOYAMA's private collection, Wakayama Prefecture.
LC: Mr. T. C. LAN's private collection, Taipei, Taiwan.
NMNZ: National Museum of New Zealand, Wellington, New Zealand.
NSMT: National Science Museum, Tokyo.

Family Psammobiidae FLEMING, 1828

Genus *Gari* SCHUMACHER, 1817

Essai Nouv. Syst. Vers Test., 44: 131–132.

Type Species: *Gari vulgaris* Schumacher, 1817 (= *Tellina truncata* Linnaeus, 1767), by designation uner I.C.Z.N. plenary powers (I.C.Z.N. Oppinion 910, 1970).

Diagnosis: Shell elongate, oval. Posterior end obliquely truncated, wider than the anterior end. Outer surface smooth or ornamented with oblique ridges running from antero-dorsal margin to ventral margin. Cardinal ligament connecting anterior cardinal in the right valve

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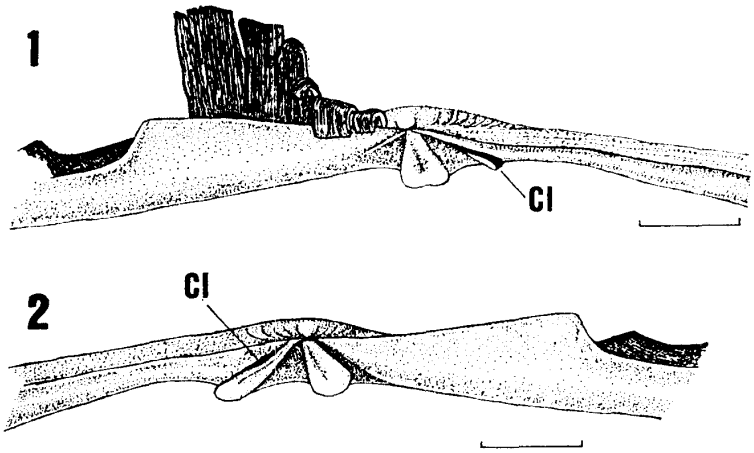

Figs. 1–2. Cardinal ligament (Cl) of *Gari maculosa* (LAMARCK, 1818). NSMT-Mo65203, Kashiwajima, Kochi Prefecture. The scale line represents 2 mm. 1: left valve. 2: right valve.

and anterior dorsal part of the anterior socket of the left valve (Figs. 1–2).

Remarks: The cardinal ligament of *Gari* is apparently similar to the inner ligament of *Semelangulus* IREDALE, 1924 of the Tellinidae. But the principal purpose of cardinal ligament is to connect both valves with each others, because it is entirely composed of a lamellar layer, while the inner ligament of *Semelangulus* consists of both lamellar and fibrous layers which work to open the ventral margins of both valves.

Subgenus *Grammatomya* DALL, 1898

Proc. Acad. Nat. Sci. Phila., 1898: 57.

Type Species: *Psammobia squamosa* LAMARCK, 1818, by monotypy.

Diagnosis: Outer surface ornamented with strong radial ribs in the posterior slope and oblique ridges in anterior to middle parts.

Gari (*Grammatomya*) *squamosa* (LAMARCK, 1818)

(Pl. 1, figs. 1–3)

Psammobia squamosa LAMARCK, 1818, p. 514, sp. 9; DELESSERT, 1841, pl. 5, f. 6; HANLEY, 1843, p. 57, pl. 11, f. 47; WOODWARD, 1854; REEVE, 1857, pl. 7, sp. 50; WOODWARD, 1913, pl. 19, f. 8.
Gari squamosa (LAMARCK): BERTIN, 1880, p. 106.
Psammobia (*Gari*) *squamosa* LAMARCK: FISCHER, 1887, p. 1104, pl. 21, f. 10.
Gari (*Grammatomya*) *squamosa* (LAMARCK): PRASHAD, 1932, pp. 304–305; SCARLATO, 1965, pp. 50–51, pl. 3, f. 3; KEEN, 1969, N631, f. E115–5; CERNOHORSKY, 1972, p. 231 (part).
Grammatomya squamosa (LAMARCK): HABE, 1977, pp. 219–220.
Psammobia denticulata ADAMS & REEVE, 1850, p. 80, pl. 24, f. 2; REEVE, 1857, pl. 7, sp. 49.
Gari denticulata (ADAMS & REEVE): BERTIN, 1880, p. 107.
Psammobia rugulosa ADAMS & REEVE, 1850, p. 81, pl. 24, f. 4; REEVE, 1857, pl. 7, sp. 51.
Gari rugulosa (ADAMS & REEVE): BERTIN, 1890, p. 106.
Psammobia palmula DESHAYES, 1855, p. 324; REEVE, 1857, pl. 7, f. 47.
Gari palmula (DESHAYES): BERTIN, 1880, p. 107.

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Material Examined: IC, Tosa-Okinoshima, Kochi Prefecture, 16 Aug. 1967, coll. by H. ITO; NSMT-Mo63850 & 64713, Oshima Strait, Setouchi-cho, Oshima-gun, Amami Island, Kagoshima Prefecture; NSMT-Mo64781, Amami Islands; IC, Bohol Island, Philippines; NSMT-Mo64714, "Celebes"; NSMT-Mo63372, Uiha Island, Ha'apai, Tonga Islands.

Diagnosis: Small psammobiid with an elongate oval shell. Outer surface of shell ornamented with fine oblique ridges which run from anterior dorsal margin to posterior ventral margin and gradually grow to radial ribs in the posterior slope.

Description: Shell small, elongate oval, strongly inequilateral, equivalve. Anterior end nar-

Table 1. Measurements (mm) of *Gari* (*Grammatomya*) *squamosa* (LAMARCK, 1818).

	Valve	Length	Height	Convexity
IC, Tosa	R+L	17.0	8.1	—
IC, Bohol–1	R+L	29.0	14.1	6.4
Bohol–2	L	29.4	13.7	3.8*
NSMT–Mo63850–1	R+L	—	(8.1)	—
63850–2	R+L	11.9	6.2	2.7
63850–3	L	8.8	4.6	1.0*
NSMT–Mo64713–1	R+L	28.4	13.6	6.4
64713–2	R+L	29.2	13.3	—
64713–3	R+L	29.3	13.9	6.8
64713–4	R+L	23.8	11.3	6.0
64713–5	R+L	28.8	14.1	7.5
64713–6	R+L	22.7	11.8	5.3
64713–7	R+L	21.3	10.1	5.0
64713–8	R+L	21.7	9.5	5.0
64713–9	R+L	22.1	10.3	5.4
64713–10	R	24.0	11.0	3.4*
64713–11	R+L	22.1	10.5	4.7
64713–12	R+L	19.7	9.5	4.4
64713–13	R+L	20.1	—	4.4
64713–14	R+L	17.6	8.8	4.5
64713–15	R+L	17.6	8.6	3.8
64713–16	R+L	16.6	7.9	3.8
64713–17	R+L	17.1	7.9	3.7
64713–18	R+L	14.9	6.7	3.0
64713–19	R+L	14.8	7.1	3.5
64713–20	R+L	14.6	6.9	3.4
64713–21	R+L	13.6	6.7	2.9
NSMT–Mo64714–1	R+L	33.0	15.5	7.8
64714–2	R+L	30.7	14.9	7.1
64714–3	R+L	20.8	10.3	5.0
NSMT–Mo64781	R+L	28.8	14.4	7.5
NSMT–Mo63372	R+L	17.9	8.5	3.8

*: Single valve.

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rowly rounded, narrowly gaped; posterior end obliquely truncated, narrowly gaped; ventral margin gently rounded. Anterior dorsal margin convex, shorter than concave, posterior dorsal margin. Beak small, low, orthogyrous, placed at one-third of shell length from anterior end. Outer surface ornamented with very fine radial threads and fine, and regulraly spaced, oblique ridges which run from anterior dorsal margin to posterior ventral margin in anterior and middle areas; posterior slope ornamented with 9–11, round radial ribs with small prickly scales separated by deep groove; oblique ridges not interrupted, but becoming radial ribs gradually. Scales on radial ribs more distinct in the right valve. Outer coloration varying creamy white, orange, reddish brown or purple with white, radial rays or blotches. Hinge plate narrow; two cardinals in the right valve and two in the left. Posterior cardinal in the right valve and anterior cardinal in the left valve bifid. Anterior adductor scar elongate oval; posterior scar subcircular; both adductor scars nearly equal in slze. Pallial line entire, having wide space from the line to ventral margin; pallial sinus rounded, deep, reaching nearly half of shell length.

Measurements (*mm*): See Table 1.

Distribution: Kochi Prefecture; Oshima Strait, Amami Islands; Okinawa Islands (KURODA, 1960); Hainan Island, China (SCARLATO, 1965); Masbate and Bohol Islands, Philippines (REEVE, 1857); Tonga Islands; Banda Islands, Moluccas, Indonesia (PRASHAD, 1932); Malaysia (SMITH, 1900); Phuket, Thailand (TANTANASIRIWONG, 1979).

Remarks: HEDLEY (1918, p. 28) noted that *Psammobia palmula* DESHAYES, 1855 was erroneously recorded by DESHAYES (1855) as from Sydney. The shell of *P. palmula* has oblique ridges which become gradually radial ribs in the posterior slopes, and the type locality is possibly from the tropical western Pacific.

Gari (*Grammatomya*) *pulcherrima pulcherrima* (DESHAYES, 1855)

(Pl. 2, figs. 1–7)

Psammobia pulcherrima DESHAYES, 1855, p. 325; REEVE, 1857, pl. 7, sp. 46; SMITH, 1885, p. 91.
Psammobia (*Gari*) *pulcherrima* DESHAYES: MELVILL & STANDEN, 1899, p. 198.
Gari pulcherrima (DESHAYES): MELVILL & STANDEN, 1906, p. 842.
Gari (*Gari*) *pulcherrima* (DESHAYES); PRASHAD, 1932, p. 300–301.
Gari (*Garmmatomya*) *pulcherrima* (DESHAYES): KURODA, 1963, p. 67.
Psammobia pazi HIDALGO, 1867, p. 306, pl. 8, f. 4.
Gari squamosa (LAMARCK): CERNOHORSKY, 1972, p. 231, pl. 66, f. 4.

Material Examined: NSMT-Mo63851, 64720 & 64721, Oshima Strait, Setouchi-cho, Oshima-gun, Amami Islands, Kagoshima Prefecture; NSMT-Mo64712, Folding Islet, Honda Bay, Palawan, Philippines; NSMT-Mo64711, Ko Phi Phi Le, NSMT-Mo64912, Ko Bida Nai, Phi Phi Islands, Phuket, Thailand.

Diagnosis: Psammobiid with an elongate oval shell and a truncated wide posterior end. Outer surface of shell ornamented with oblique ridges which are separated by deep grooves and are discordant with radial riblets in posterior slope.

Description: Shell small, thin, solid, elongate oval, bilaterally compressed, inequilateral, equivalve. Anterior end narrowly rounded; posterior end slightly narrowly truncated. Postero-

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dorsal and postero-ventral margins subangular. Postero-dorsal area ornamented with 10–12 radial ribs with prickly scales which are more distinct in the right valve. Anterior to middle part of shell ornamented with oblique ridges which run from antero-dorsal margin to ventral margin and are interrupted by the radial ribs of the postero-dorsal area. Radial ribs and oblique ridges slightly stronger in the right valve than those in the left valve. Outer coloration varying white, orange and purple with reddish brown radial streaks and blotches. Hinge plate narrow, with two bifurcated cardinals and posterior lateral in the right valve and bifid, anterior cardinal, weak posterior cardinal and weak posterior lateral in the left valve. Inner ventral margin extremely finely crenulated. Anterior adductor scar elongate oval, posterior adductor scar subcircular; pallial line entire; pallial sinus deep, rounded, attaching pallial line.
Measurements (*mm*): See Table 2.

Table 2. Measurements (mm) of *Gari* (*Grammatomya*) *pulcherrima pulcherrima* (DESHAYES, 1855).

	Valve	Length	Height	Convexity
NSMT-Mo63851-1	R+L	31.9	15.0	8.7
63851-2	R+L	29.8	14.7	8.1
NSMT-Mo64720	R+L	32.0	15.4	—
NSMT-Mo64721	R+L	17.4	8.7	4.0
NSMT-Mo64712	R	—	15.1	4.7*
NSMT-Mo64711	R+L	30.7	16.7	8.9
NSMT-Mo64912-1	R+L	22.7	11.6	10.1
64912-2	R	29.7	15.7	5.3*
64912-3	R	25.3	—	—

*: Single valve.

Distribution: Oshima Strait, Amami Islands; Taiwan; Philippines (DESHAYES, 1855; REEVE, 1857); Sumbawa Island and Timor Island, Indonesia (PRASHAD, 1932); Torres Straits (MELVILL & STANDEN, 1899); New Caledonia (BERTIN, 1880); Momi Bay, Fiji Island (CERNOHORSKY, 1972); Tongatapu (SMITH, 1885); Phuket, Thailand; Andaman Islands (MELVILL & SYKES, 1898); Maldive Islands (SMITH, 1902); Gulf of Oman, Maskat (MELVILL & STANDEN, 1906); Madagascar (BERTIN, 1880).
Remarks: *Gari* (*Grammatomya*) *pulcherrima pulcherrima* (DESHAYES, 1855) is apparently very close to *Gari* (*Grammatomya*) *squamosa* (LAMARCK, 1818), but DESHAYES' species clearly differs from the latter by having oblique ridges which are interrupted by the radial ribs in the posterior slope. *G.* (*G.*) *pulcherrima pulcherrima* lacks fine radial streaks of *G.* (*G.*) *squamosa* in the anterior part of shell.

Psammobia abrupta Deshayes, 1855, pp. 324–325, is possibly conspecific with *P. pulcherrima* DESHAYES, 1855, p. 325. I prefer to adopt the latter name, because the forme was described on incomplete, juvenile shell and the latter is widespread in the literature (WILLAN, pers. comm.).

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Gari (*Grammatomya*) *pulcherrima kurodai* (HABE, 1981)

(Pl. 2, figs. 8–13)

Grammatomya kurodai HABE, 1981, pp. 139–140, pl. 3, f. 5.
Gari (*Grammatomya*) *pulcherrima* (DESHAYES): MATSUMOTO, 1979, p. 109, pl. D, f. 10.

Material Examined: NSMT-Mo64715, Enshunada Sea; NSMT-Mo64716, Kushimoto, Wakayama Prefecture, 28 m; NSMT-Mo64717, Kushimoto, 32 m; IC, Kushimoto, May 1978; IC, Katanami, Kushimoto; IC, Sakai, Wakayama Prefecture, 22 Mar. 1969; NSMT-Mo42867, 58966 (paratype), 64718, 64719, & IC, Okinoshima, Kochi Prefecture.

Diagnosis: Psammobiid with an elongate oval shell and long and narrow posterior end. Outer surface ornamented with oblique ridges which are separated by shallow grooves and are discordant with radial riblets in posterior slope.

Description: Shell small, long and narrow, thin, elongate oval, bilaterally compressed, inequilateral, equivalve. Anterior end narrowly rounded; narrowly subrounded posterior end with rounded postero-dorsal and postero-ventral margins. Outer surface ornamented with fine, oblique ridges in the anterior to middle parts of shell and round, radial ribs with prickly scales in the posterior slope; oblique ridges interrupted by radial ribs. Radial and oblique ornamentations and prickly scales more distinct in the right valve than in the left. Posterior slope of the right valve slightly wider than that of the left valve. Outer coloration varying creamy white, orange to purple with reddish brown, radial rays and blotches. Hinge-plate narrow, with two bifid cardinals in the right valve and a bifid anterior cardinal, a weak posterior cardinal and a weak anterior lateral in the left valve. Anterior adductor scar elongate oval; posterior scar subcircular. A pedal retractor scar located antero-dorsal margin just before the anterior cardinal. Pallial line entire. Pallial sinus deep, rounded, attached to the pallial line. Inner ventral margin finely crenulated.

Measurements (*mm*): See Table 3.

Distribution: Enshunada Sea (HABE, 1981); Mie Pref. (MATSUMOTO, 1979); Kushimoto and Sakai, Wakayama Pref.; Okinoshima Islet, Kochi Pref. (type locality, HABE, 1981).

Remarks: *Gari* (*Grammatomya*) *pulcherrima kurodai* (HABE, 1981) differs form *G.* (*G.*) *pulcherrima pulcherrima* (DESHAYES, 1855) by the possession of the longer and narrower shell with a longer and narrowly rounded posterior end, slightly weaker shell ornamentations and wider posterior slope in the right valve. *G.* (*G.*) *pulcherrima pulcherrima* shows wide geographical distribution from Amami Islands, southwestern Japan to Madagascar Island, the Indian Ocean, while *G.* (*G.*) *pulcherrima kurodai* is restricted to the Enshunada Sea, middle Honshu to southern coast of Shikoku, western Japan, and is possibly one of geographical subspecies of *G.* (*G.*) *pulcherrima pulcherrima*. OYAMA (1973) and HORIKOSHI (1983) pointed out that a number of mollusks from western Japan have been identified with the tropical Indo-Western Pacific species, but some species are slightly differ from the widely distributed southeast Asian species and show rather distinct Japanese forms, e.g., *Cyclina orientalis* (SOWERBY, 1855) and *Anomalocardia* (*Anomalodiscus*) *roemeri* (DUNKER, 1860), differ from tropical Indo-Pacific species *Cyclina sinensis* (GMELIN, 1791) and *Anomalocardia* (*Anomalodiscus*) *squamosa* (LINNAEUS, 1758), respectively.

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Table 3. Measurements (mm) of *Gari* (*Grammatomya*) *pulcherrima kurodai* (HABE, 1981).

	Valve	Length	Height	Convexity
NSMT-Mo64715-1	R+L	30.5	15.5	7.9
64715-2	R+L	30.9	15.3	7.8
64715-3	R+L	29.2	14.6	7.3
64715-4	R+L	28.9	13.8	7.4
64715-5	R+L	23.0	11.6	5.9
NSMT-Mo64716-1	R	26.2	12.7	3.4*
64716-2	R	25.2	13.0	3.7*
65716-3	L	21.8	10.3	2.5*
64716-4	L	19.2	9.2	2.5*
NSMT-Mo64717-1	R	25.4	12.5	4.3*
64717-2	L	23.2	11.0	2.8*
64717-3	L	19.2	9.1	2.4*
NSMT-Mo64787	R	30.2	14.9	4.3*
NSMT-Mo42867	R+L	26.8	13.3	6.8
NSMT-Mo58966	L	31.0	15.0	4.5*
NSMT-Mo64718-1	R+L	25.8	12.7	6.5
64718-2	R+L	25.7	12.6	6.0
64718-3	R+L	24.9	11.9	5.9
64718-4	R+L	23.7	11.6	5.8
64718-5	R+L	25.6	12.5	6.2
64718-6	R+L	23.0	11.6	5.6
64718-7	R+L	21.7	10.7	5.4
64718-8	R+L	20.4	10.3	4.8
64718-9	R+L	21.5	10.3	5.1
64718-10	R+L	20.9	10.2	5.0
64718-11	R+L	20.2	9.5	4.5
64718-12	R+L	19.8	9.4	4.3
64718-13	R+L	20.4	10.1	4.9
64718-14	R+L	19.2	9.4	4.2
64718-15	R+L	18.2	9.1	4.2
64718-16	R+L	16.8	8.5	3.8
NSMT-Mo64719-1	R+L	33.5	17.9	9.0
64719-2	R+L	31.6	16.2	9.4
64719-3	R+L	30.6	15.5	8.6
64719-4	R+L	26.8	13.7	7.3
64719-5	R+L	25.2	12.3	6.3
64719-6	R+L	26.8	13.2	6.6
64719-7	R+L	24.4	12.4	6.2
64719-8	R+L	24.2	12.0	5.7
64719-9	R+L	21.7	10.8	5.0
64719-10	R+L	21.6	10.7	5.1
IC, Sakai-1	R+L	22.9	11.4	5.6
Sakai-2	R+L	27.4	13.4	7.1

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Table 3. (Continued)

	Valve	Length	Height	Convexity
Sakai-3	R+L	27.9	13.9	7.7
Sakai-4	R+L	28.2	14.2	7.1
Sakai-5	R+L	30.6	15.9	8.4
IC, Katanami-1	R+L	28.1	13.7	7.2
Katanami-2	R+L	27.6	13.2	6.7
Katanami-3	R+L	24.9	12.1	6.2
Katanami-4	R+L	22.8	11.2	5.4
Katanami-5	R+L	23.9	11.3	5.6
Katanami-6	R+L	24.4	11.8	5.4
Katanami-7	R+L	24.7	11.9	5.6
IC, Kushimoto	R+L	28.8	14.1	7.2
IC, Okinoshima	R+L	17.2	8.1	3.7

*: Single valve.

Genus *Dysmea* DALL, BARTSCH & REHDER, 1938

Bull. B.P. Bishop Mus., 153: 173–174.

Type Species: *Solen occidens* GMELIN, 1791, by original designation.
Diagnosis: Shell large, elongate oval. Anterior margin narrowly rounded; posterior margin obliquely truncated, wider than the anterior margin. Outer surface smooth except for fine growth lines. Hinge-plate with a tooth-like projection before the anterior cardinal in the left valve, and with a cardinal ligament on the projection.

Dysmea occidens (GMELIN, 1791)

(Pl. 1, figs. 10–12)

Solen occidens GMELIN, 1791, p. 3228.
Gari occidens (GMELIN); BERTIN, 1880, p. 123.
Dysmea occidens (GMELIN): DALL, BARTSCH & REHDER, 1938, p. 173–174.
Gari (*Dysmea*) *occidens* (GMELIN): CERNOHORSKY, 1978, p. 186, pl. 68, f. 1.

Material Examined: IC, "Okinawa Prefecture, Japan"; KAC, Panglao, Bohol Island, NSMT-Mo65154, Kamungi, southeast of Olango Island, Cebu, NSMT-Mo65153, south of Folding Island, Honda Bay, Palawan, Philippines; NSMT-Mo65155, "Celebes".
Diagnosis: Large psammobiid with thin oval shell. Strong tooth-like projection on hinge of left valve immediately anterior of beak. Outer surface smooth except for growth striae. Obscure white blotches scattered in middle part of shell.
Description: Shell large, elongate oval, thin, inequilateral, equivalve. Anterior end rounded, narrowly gaping; posterior end obliquely truncated, widely gaping. Outer surface smooth except for fine growth lines. Outer coloration pale purple with two, short, white rays in the umbonal area, several dark-brown short lines on both anterior and posterior dorsal areas

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and radially scattered white blotches in the middle part. Epidermis pale brown, thin. Inner coloration purple, and pale yellow near umbo. Hinge-plate narrow, with two, strong cardinals in the right valve; strong anterior and weak posterior cardinals in the left valve. Antero-dorsal margin just before beak forming strong tooth-like projection which corresponds with a deep pit before the anterior cardinal in the right valve (Pl. 1, figs. 10, 12). Nymph large, wide, angular at postero-dorsal corner. A weak inner rib from beak to mid-ventral margin. Opisthodetic parivincular ligament large; cardinal ligament chiefly attached on the upper part of projection. Anterior adductor scar elongate oval, smaller than subcircular posterior scar; pallial scar entire; pallial sinus horizontal, deep, reaching a half of shell length, subquadrate. Anterior pedal retractor scar distinct, placed anterior dorsal margin before the anterior cardinal.

Measurements (*mm*):

	Valve	Length	Height	Convexity
KAC	R+L	103.8	59.0	27.4
NSMT-Mo65155	R+L	66.3	37.2	19.4
NSMT-Mo65154	L	81.5	44.7	12.8*

*: Convexity of single valve.

Distribution: Okinawa Prefecture; Bohol Island, Philippines; New Caledonia (BERTIN, 1880).

Dysmea oriens (DESHAYES, 1855)

(Pl. 1, figs. 4–7)

Psammobia oriens DESHAYES, 1855, p. 318; REEVE, 1857, pl. 1, f. 1.
Gari castrensis (CHEMNITZ): BERTIN, 1880, p. 123.
Gari oriens (DESHAYES): BERTIN, 1880, p. 124.
Psammobia castrensis (SPENGLER): SMITH, 1885, p. 91–92. (non SPENGLER, 1794).
Gari (*Dysmea*) *tongana* (QUOY & GAIMARD): CERNOHORSKY, 1978, p. 186, pl. 68, f. 2. (non QUOY & GAIMARD, 1835)
Dysmea occidens (GMELIN): HABE & KOSUGE, 1966, pl. 67, f. 2.
Gari (*Dysmea*) *occidens* (GMELIN): SPRINGSTEEN & LEOBRERA, 1986, p. 305, pl. 86, f. 26.

Material Examined: NSMT-Mo65152, Tosa-Okinoshima, Kochi Prefecture, Kawamura Collection.

Diagnosis: Large psammobiid with a thick oval shell. Outer surface ornamented with concentric lamellae which are distinct in posterior slope. Zigzag streaks scattered around umbo.

Description: Shell large, thick, inequilateral, equivalve. Anterior end narrowly rounded, narrowly gaping; posterior end obliquely truncated, widely gaped. Outer surface smooth except for posterior part with concentric lamellae. Outer coloration white and pale yellow around umbo with wide purplish brown rays and fine, reddish purple, zigzag streaks. Inner coloration white. Two strong cardinals in the right valve; strong, bifid anterior and weak cardinals in the left valve. Tooth-like projection in front of anterior cardinal on left valve absent. Nymph long and large. Opisthodetic parivincular ligament large. Anterior adductor

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scar elongate oval; posterior scar circular; pallial line entire; pallial sinus deep, reaching 3/5 of shell length, rounded; anterior pedal retractor scar distinct, placed slightly apart from anterior cardinal.

Measurements (*mm*):

	Valve	Length	Height	Convexity
NSMT-Mo65152	R+L	76.3	43.0	22.3

Distribution: Kochi Prefecture, Japan; Palawan (SPRINGSTEEN & LEOBRERA, 1986) and Bohol, Philippines; Tonga and Fiji Islands (CERNOHORSKY, 1976); New Caledonia (BERTIN, 1880); Madagascar (BERTIN, 1880).

Remarks: SMITH (1885) considered that *Dysmea oriens* is conspecific with *D. castrensis* (SPENGLER, 1894) from West Africa, but I adopt *D. oriens* for the Indo-West Pacific species.

Japanese specimens of *D. oriens* have been erroneously identified with *D. occidens* (e.g., HABE & KOSUGE, 1966; HABE, 1977). *D. oriens* clearly differs from *D. occidens* by the possession of a thicker shell with brownish-purple rays and distinct concentric lamellae in the posterior slope, and lacking a tootp-like projection immediately before the anterior cardinal of the left valve. The end of pallial sinus of *D. oriens* is narrowly rounded, while it is subquadrate in *D. occidens*.

Although *D. oriens* is closely resembles *D. occidens* externally, it lacks a tooth-like projection of the left valve. WILLAN (pers. comm.) places *D. oriens* in *Gari* (*Gobraeus*).

Genus *Kermadysmea* POWELL, 1958

Rec. New Zealand Inst. Mus., 5: 73.

Type Species: *Kermadysmea galatheae* POWELL, 1958, by original designation.

Diagnosis: Shell ovate-trapezoidal, and twisted posteriorly to the right. Parivincular ligament on nymph. Outer surface ornamented with rounded, concentric ribs which consists of a series of minute riblets of half-rings (Fig. 3). Ligament opisthodetic, lacking lamellar,

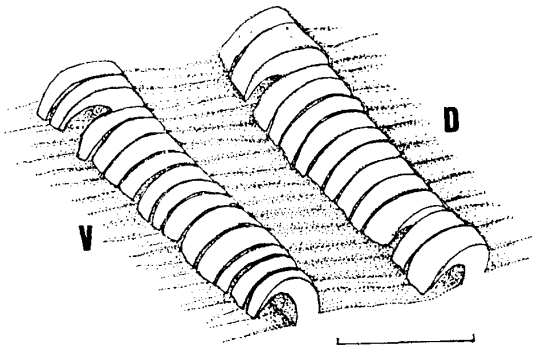

Fig. 3. Concentric ribs of *Kermadysmea galatheae* Powell, 1958. NSMT-Mo64680, Okinawa Prefecture. The scale line represents 1 mm. D: dorsal side. V: ventral side.

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cardinal ligament. Hinge-plate with two cardinals in each valve, lacking anterior and posterior laterals. Right valve with a long and narrow lunule; left valve also with a long and narrow lunule and an escutcheon.

Remarks: Some investigators treat *Kermadysmea* as a subgenus of *Gari* SCHUMACHER, 1817 (KEEN, 1969; WILLAN, in litt.) or *Dysmea* DALL, BARTSCH & REHDER, 1938 (HABE, 1977), but I consider that it should be accorded generic status like POWELL (1958), OKUTANI (1983) and LAN (1985) because *Kermadysmea* has unique concentric lamellae and lacks the cardinal ligament which I have found characterizes all species of genus *Gari* under examination, e.g., *Gari truncata* (LINNAEUS, 1767), *G. tongana* (QUOY & GAIMARD, 1835), *G. maculosa* (LAMARCK, 1818), *G. anomala* (DESHAYES, 1855), *G. hosoyai* HABE, 1958, *G. sibogai* PRASHAD, 1932, *G. lesson*, (BLAINVILLE, 1826), *G. stangeri* (GRAY in DIFFENBACH, 1843), *G. lineolata* (GRAY in YATE, 1835), *G. squamosa* (LAMARCK, 1818), *G. pulcherrima pulcherrima* (DESHAYES, 1855), and *G. pulcherrima kurodai* (HABE, 1891). *Dysmea occidens* (GMELIN, 1791), the type-species of *Dysmea*, also has the cardinal ligment on a distinct tooth-like projection on the dorsal margin just before the beak (Pl. 1, fig. 10).

Kermadysmea galatheae POWELL, 1958

(Figs. 3–5; Plate 3, figs. 1–11)

Kermadysmea galatheae POWELL, 1958, p. 74, pl. 10, f. 4; OKUTANI, 1983, p. 12, pl. 47, f. 7; LAN, 1985, p. 161, f.
Gari (*Kermadysmea*) *galatheae* (POWELL, 1958): KEEN, 1969, p. N631, f. E115–12.
Dysmea (*Kermadysmea*) *galatheae* (POWELL): HABE, 1977, p. 220.

Material Examined: Pleistocene—NSMT-Mo64681, Ryukyu Limestone, Sanbe, Kamikatetsu, Kikai-cho, Kikaishima Islet, Oshima-gun, Kagoshima Pref., coll. by K. MURAKAMI.

Recent—NMNZ-MF25424, 4.26 km off Fleetwood Bluff, Raoul Island, in 135 m, R.V. Acheron, 25 Oct. 1975; NMNZ-MF25686, 4.07 km off Nugent Island, Raoul Island, in 146–164 m, R.V. Acheron, 28 Oct. 1975; NMNZ-MF26586, southeast of Smith Bluff, Raoul Island, Kermadec Islands (29°18.9′S, 117°56.4′W), in 82–100 m, R.V. Acheron, 10 Sept. 1976; NMNZ-MF26631, east of Dayrell Island, Herald Islets, Kermadec Islands (29°14.73′S, 177°50.34′W), in 135–146 m, R.V. Acheron, 10 Sept. 1976; NSMT-Mo64680, Okinawa Pref. (Kawamura Coll.); LC, Okinawa Pref.

Diagnosis: Medium-sized psammobiid with twisted elongate oval shell. Outer surface ornamented with rounded concentric ribs consist of a series of half-rings.

Description: Shells ovate-trapezoidal, inequilateral and slightly inequivalve. Anterior and posterior ends narrowly gaping; postero-dorsal margin slightly twisted to the right. Outer surface ornamented with regularly spaced, concentric ribs which made up by a series of minute radial riblets of half-rings, except in the umbonal area; ribs become angular to anteriorly and rounded posteriorly. Middle and central parts of umbonal area ornamented with concentric lamellae only; posterior part of umbonal area ornamented with concentric lamellae with fine radial threads. Lunule and escutcheon appear in the left valve only, long and very narrow. Outer coloration pale brown with wide, red, concentric bands and

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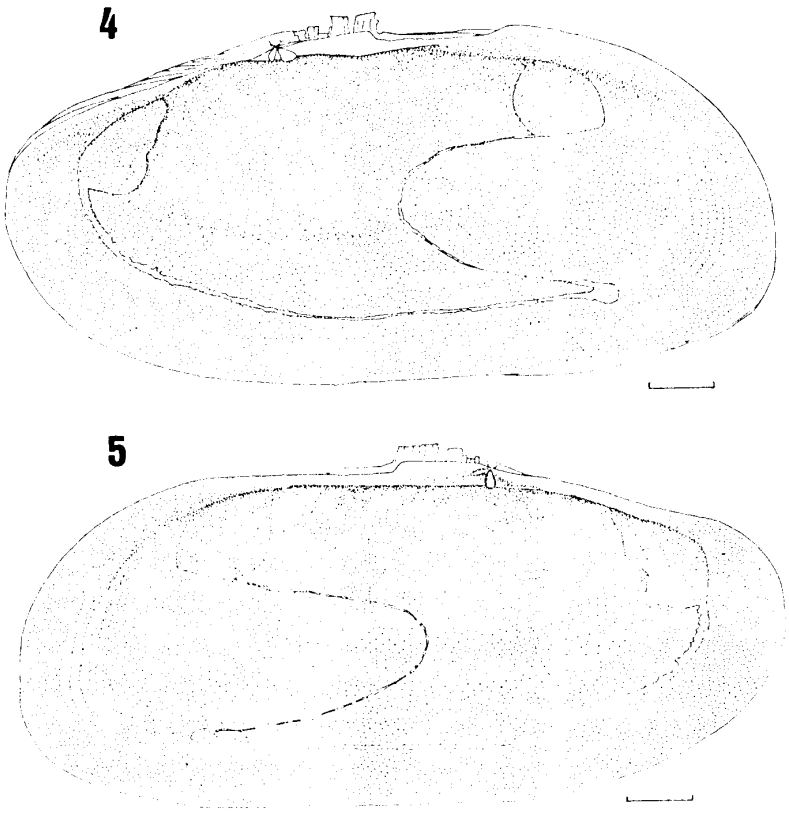

Figs. 4–5. Inside view of *Kermadysmea galatheae* Powell, 1958. NSMT-Mo64680, Okinawa Prefecture. The scale line represents 5 mm. 4: right valve. 5: left valve.

numerous, fine radial rays. Inner coloration pale brown with wide reddish brown concentric bands; white radial rays running from beak to postero-ventral margin. Narrow hinge-plate with two cardinals in each valve, lacking anterior and posterior laterals; nymph small, long and narrow. Pallial sinus rounded, moderately deep (Figs. 4–5). Anterior adductor scar elongate oval; posterior scar subcircular.

Measurements (*mm*): See Table 4.

Table 4. Measurements (mm) of *Kermadysmea galatheae* Powell, 1958.

	Valve	Length	Height	Convexity
NSMT–Mo64680	R+L	57.7	29.0	16.7
NSMT–Mo64681	L	36.2	17.8	5.0*
LC	R+L	50.1	24.4	13.7
IC	R+L	47.3	24.3	13.9
NMNZ–MF25424	L	47.3	23.5	7.0*
NMNZ–MF25686	R+L	15.7	8.0	4.1
NMNZ–MF26586–1	R	47.3	23.6	7.7*
26586–2	R	43.6	21.2	7.0*
26586–3	R	33.7	17.6	5.5*
NMNZ–MF26631	R	—	—	—

* : Single valve.

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Remarks: *Kermadysmea galatheae* was originally described based on specimens dredged from a coarse shell-sand and gravel bottom off Raoul Island, Kermadec Islands, in 83 meters (Galathea St. 676, 29°13'S, 177°57'W). *K. galatheae* is a distinct species of the Psammobiidae, because the outer surface of its shell is ornamented with characteristic, concentric ribs. This species is presently only known from the Kermadec Islands, southwestern Pacific, and from the Ryukyu Islands, including Okinawa Island and Kikaishima Islet (OKUTANI, 1983; LAN, 1985), and MATSUKUMA & YOOSUKH (1988) considered that geographical distribution of this species is apparently antitropical. But, Muscum National d'Histoire Naturelle, Paris is said to have this species from Réunion (WILLAN, in litt.).

The shells from southwestern Japan differ from the Kermadec ones by the possession of shallower and more horizontally placed pallial sinus, more developed ribs of half-ring and more regularly spaced radial threads. The pallial sinus in Japanese shells (NSMT-Mo64680) is discrepant in both valves, i.e., deeper in the left valve than that in the right valve, while, the pallial sinus of Kermadec shells is nearly equal in form and size in both valves. Further specimens are required to examine the characteristics of pallial sinus. The Kermadec specimens have more poorly developed, somewhat angular, half-ring ribs and the wider umbonal area which is ornamented with more crowded concentric lamellae and without half-ring ribs nor radial threads; outer shell layer of the Kermadec specimens has numerous fine radial cracks.

QUOY & GAIMARD (1835) illustrated *Psammobia tongana* from the Tonga Islands as an elongate oval shell with concentric riblets, which is apparently similar to *K. galatheae*. Syntypes of *P. tongana* stored in Museum National d'Histoire Naturelle, Paris, have a thicker shell with oblique ridges and a cardinal ligament. Paralectotype of *P. tongana* suggests that it is possibly conspecific with *Gari maculosa* (LAMARCK, 1818).

Generic and Familial Re-assignation of *Kermadysmea nishimurai*

Kermadysmea nishimurai HABE, 1976 has a cruciform muscle (Fig. 6), an elongate oval, twisted shell with both anterior and posterior, weak laterals in the right valve, two cardinals, steeply inclined ascending limb of the pallial sinus and a weak nymph, and lacks both anterior and posterior gapes (Figs. 6–9). *K. nishimurai* is apparently very close to *Psammotaea aenigmatica* Viader, 1951 from Mauritius, which has strong concentric ribs and wider and subtruncate posterior end. These species seem to have common characteristic of the Tellinidae and Psammobiidae. Although posteriorly truncated subquadrate shell of *P. aenigmatica* and a small but distinct nymph of *K. nishimurai* are characteristic of the Psammobiidae, absence of gapes at both ends, anterior and posterior laterals in the right valve, obliquely erected pallial sinus and posterion end twisted to the left are not characteristic of Psammobiidae but of the Tellinidae (WILLAN, in litt.). The systematic position of these species is still obscure, but I treat them herein as members of the Tellinidae for their regularly spaced strong concentric ribs, rounded anterior and posterior ends without a gape. The characteristics are quite distinct among not only the Tellinidae but also the Psammobiidae, so I propose a new genus *Aenigmotellina* for *K. nishimurai* and *P. aenigmatica*.

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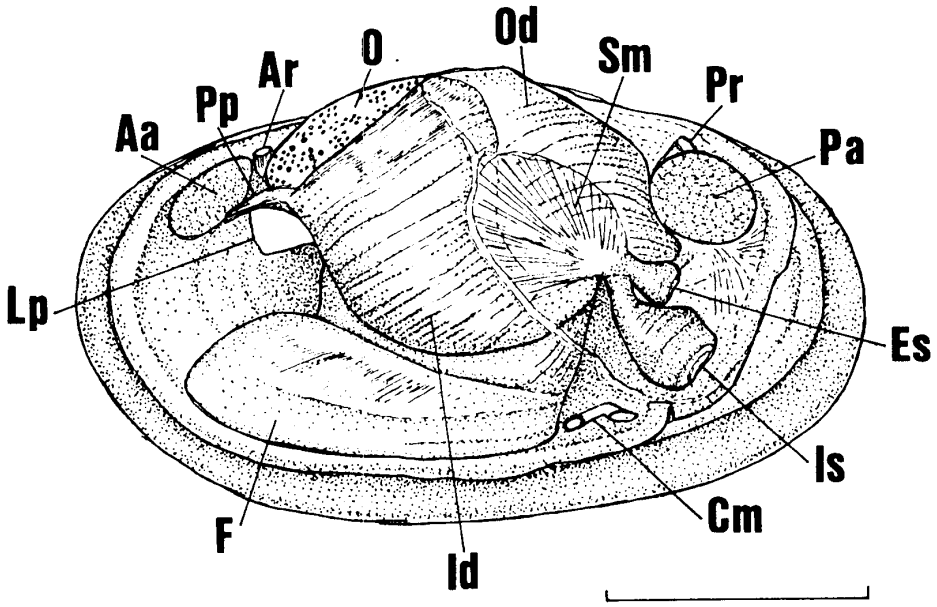
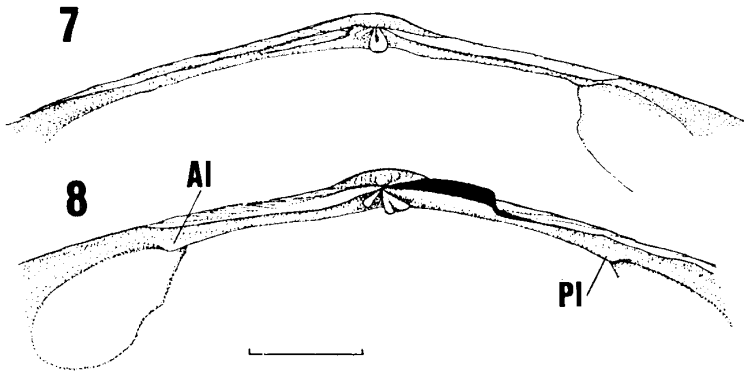


Fig. 6. Soft parts of *Aenigmotellina nishimurai* (HABE, 1976). NSMT-Mo64996, Miyakejima, Izu Islands. The scale line represents 5 mm. Aa: anterir adductor. Ar: anterior pedal retractor. Cm: cruciform muscle. Es: exhalent siphon. F: foot. Id: innerdemibranch. Is: inhalent siphon. Lp: labial palp. Od: outer demibranch. Pa: posterior adductor. Pp: pedal protractor. Pr: posterior pedal retractor. Sm: siphonal muscle.



Figs. 7–8. Cardinal area of *Aenigmotellina nishimurai* (HABE, 1976). NSMT-Mo56904 (holotype), Kozushima, Izu Islands. The scale line represents 2 mm. 7: left valve. 8: right valve. Al: anterior lateral. Pl: posterior lateral.

Genus *Aenigmotellina* nov.

Type Species: *Kermadysmea nishimurai* HABE, 1976, by original designation.

Diagnosis: Shell small, elongate oval, with strong concentric ribs and fine radial threads; rounded posterior end twisted to left. No gape at anterior and posterior ends. Lunule long and narrow, concave. Nymph small. Weak anterior cardinal and strong, bifid, posterior cardinal in right valve; rather strong, bifid, anterior cardinal and weak, posterior cardinal in left; anterior and posterior laterals small, but distinct in the right valve.

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Etymology: Aenigma, a mystery; *Tellina* Linnaeus, 1758. The gender is the feminine.
Remarks: The genus *Elliptotellina* COSSMANN, 1886 is characterized by an elongate oval, subequilateral shell with anterior and posterior laterals in the right valve only and smooth outer surface excepting growth lines (KEEN, 1969). HABE (1977) placed a small tellin with strong concentric ribs, i.e., *Tellina euglypta* Gould, 1861, in *Elliptotellina*. The species has a transversely elongate oval shell with distinct anterior and posterior laterals in the right valve, lunule, escutcheon, obliquely erected pallial sinus, strong concentric ribs and radial riblets. I consider that *Elliptotellina* should be adopted to elliptical tellins such as *Tellina kikaijimana* NOMURA & ZINBO, 1934 which lacks concentric ribs.

There are about 25 nominal genera in the Psammobiidae (KEEN, 1969; VOKES, 1980). *Ascitellina* Marwick, 1928 and *Kermadysmea* are the only genera which have concentric ridges on the outer surface. The type species of *Ascitellina,* i.e., *A. donaciformis* MARWICK, 1928, from the Oligocene of New Zealand, has a small shell with a deep pallial sinus which nearly reaches the anterior adductor scar, and lacks laterals and fine radial threads on the outer surface (MARWICK, 1928). These characteristics suggest that *K. nishimurai* and *P. aenigmatica* should not be placed in *Ascitellina*.

Aenigmotellina nishimurai (HABE, 1976)

(Figs. 6–12; Pl. 1, figs. 8–9)

Kermadysmea nishimurai HABE, 1976, p. 39–40, 42, pl. 1, f. 12; HABE, 1981, p. 140, pl. 6, f. 9.

Material Examined: NSMT-Mo51904, holotype, Ombase submarine reef near Kozushima Islet, Izu Islands; IC and KOC, off Kushimoto, Wakayama Pref., Japan; NSMT-Mo64996, KT89–6, St. ME5, east of Miyake Island, Izu Islands (34°05′N, 139°35.3′E–34°05′N, 139° 35.4′E), 100–122 m, 19 May 1989, coll. by E. Tsuchida.
Diagnosis: Small tellinid with elliptical shell. Outer surface of shell ornamented with regularly spaced strong concentric ribs. Anterior and posterior ends narrowly rounded and without gapes. Hinge-plate of the right valve with anterior and posterior laterals. Nymph small but distinct. Pallial sinus deep and erected.
Description: Right and left lobes of mantle free except for connection by a cruciform muslce. Siphonal retractor muscle well developed. Gills large, wide, subcircular. Foot white, large, axeform. Anterior adductor oval, with small anterior pedal retractor and pedal protractor; posterior adductor rounded, oval, larger than the anterior adductor, with posterior pedal retractor. Eggs 70–100 μm in diameter; germinal vesicle 30–40 μm; nucleolus 10–12 μm. Shell moderately small, elongate oval, inequilateral and inequivalve. Anterior and posterior ends rounded, not gaping. Posterior end twisted to the left (Fig. 9). Parivincular ligament on weak, but distinct nymph (Figs. 10, 12). Outer surface ornamented with distantly spaced, strong, concentric ribs with steep dorsal slope and more or less gentle ventral slope (Fig. 11). Interspaces of ribs striated by fine radial threads. Lunule long and narrow, concave. Outer coloration white, with several, narrow, yellowish brown radial rays. Hinge-plate of the right valve narrow, having small but distinct anterior and posterior laterals, weak anterior cardinal

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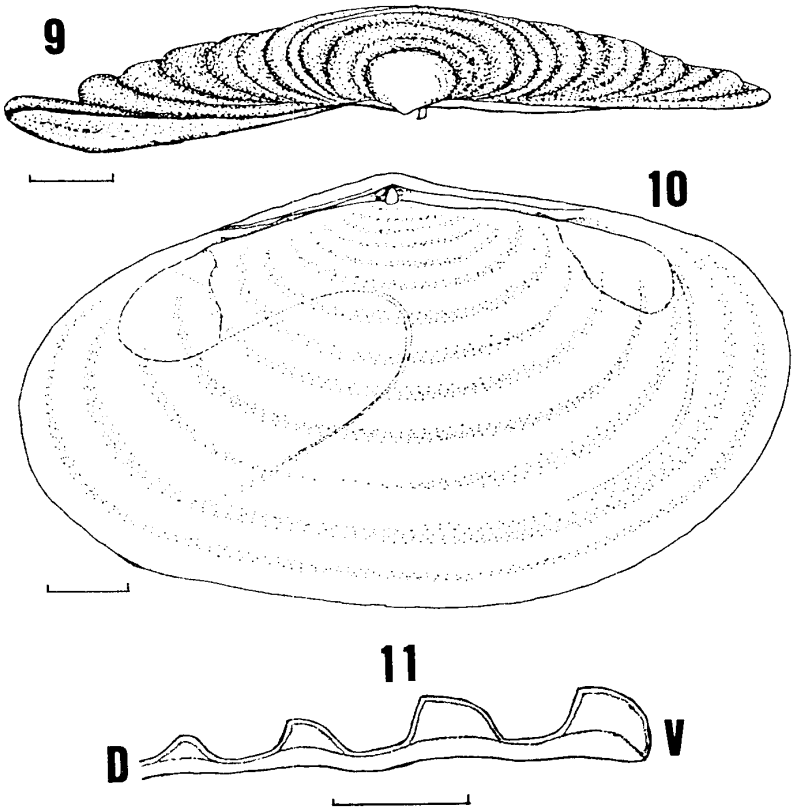
and bifid, strong posterior cardinal; in the left valve, anterior and posterior laterals extremely weak, anterior cardinal rather strong, bifid, and posterior cardinal small (Figs. 7–8). Pallial sinus rounded, moderately deep, approaching beak, equal in size and form in both right and



Figs. 9–11. *Aenigmotellina nishimurai* (HABE, 1976). NSMT-Mo56904 (holotype). 9: dorsal view of left valve. The scale line represents 2 mm. 10: inner view of left valve. The scale line represents 2 mm. 11: tansential section of ribs. D: dorsal side. V: ventral margin. The scale line represents 1 mm.

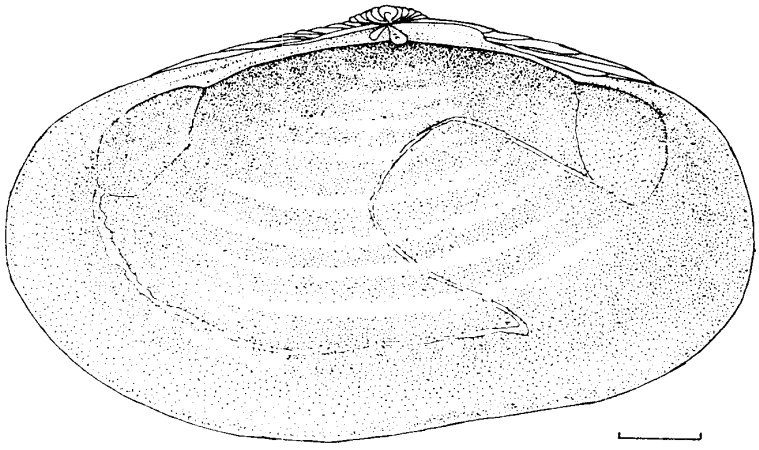


Fig. 12. Inside view of right valve of *Aenigmotellina nishimurai* (HABE, 1976). Kushimoto, Wakayama Prefecture (Koyama collection). The scale line represents 2 mm.

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left valves, and sloping upwards at about 30° to ventral margin (Figs. 10, 12). Inner ventral margin smooth.

Measurements (*mm*):

	Valve	Length	Height	Thickness
NSMT-Mo51904	R+L	20.0	11.4	3.2*
NSMT-Mo64996–1	R+L	15.0	8.9	4.7
64996–2	R+L	14.4	8.7	4.8
KOC	R+L	13.0	7.8	4.6
IC	R+L	17.4	10.5	6.0

* Thickness of the left valve, because the right valve is a fragment and the only umbonal region is preserved.

Distribution: Izu Islands to Kushimoto, Wakayama Prefecture.

Remarks: *Aenigmotellina nishimurai* differs from the Mauritian species, *Psammotaea aenigmatica* VIADER, 1951, by having a more longitudinally elongated shell with more narrowly rounded anterior and posterior ends.

Aenigmotellina aenigmatica (VIADER, 1951)

(Fig. 13)

Psammotaea aenigmatica VIADER, 1951, p. 144, pl. 3, f. 5.

Remarks: *Aenigmotellina aenigmatica* was originally described on the basis of several disarticulated valves dredged off Port-Louis harbor, Mauritius. Although I could not examine any specimens from Mauritius, the figure and descriptions given by VIADER (1951) shows that *A. aenigmatica* has a subequilateral oblong shell with psammobiid hinge and widely separated strong concentric ribs. The interstices of ribs are striated by thin, close, radial threads. The largest specimen studied by VIADER (1951) is 10 mm long and 7 mm high. These

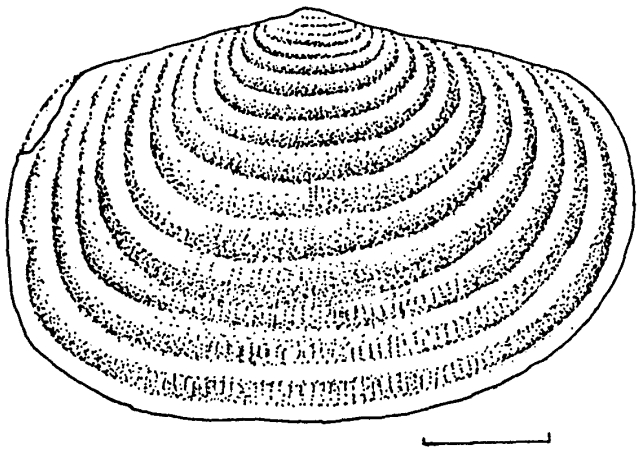

Fig. 13. *Aenigmotellina aenigmatica* (VIADER, 1951). Port-Louis, Mauritius. The scale line represents 2 mm. (Redrawing after Viader, 1951, pl. 3, fig. 5.)

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characteristics of Mauritian shells suggest that Viader's species is safely placed in my newly proposed genus *Aenigmotellina*.

要　　旨

シオサザナミガイ科は，明瞭な歯丘を持ち，側歯はごく弱いか，欠くニッコウガイ超科の二枚貝である．殻の前後端は開口し，套線湾入はほぼ水平で深い．小さな科であるが，南西日本産の種については極めて興味深い分布の型を示すもの，分類学上の混乱が見られるものがあるので，ここに再記載し，整理・検討する．

紀伊半島から四国へかけて分布するクロダヨシガイは，殻前・中部の斜めの彫刻が後部の放射肋と斜交する点で，インド-西太平洋の熱帯域に広く分布するサカライマスオガイに酷似する．しかしながら，日本産のものは殻が前後に長く，後端がすぼまり，殻表の彫刻が弱い点でサカライマスオガイと区別できる．このため，クロダヨシガイはサカライマスオガイの分布域の北東周縁部で出来た地理的亜種と考える．同様の関係は，オキシジミとタイワンオキシジミ，シオヤガイとミナミシオヤガイなどでも指摘されている．

従来，日本産のハナヤカマスオガイ属は，ハナヤカマスオガイ1種から成ると考えられてきたが，殻が厚く，殻表に幅の広い放射色帯と細かいジグザグ模様が有り，後部に顕著な板状の輪脈を持つハナヤカマスオガイ *Dysmea* oriens (DESHAYES)，及び殻は平滑で薄く，輪郭のはっきりしない白斑を一面に散らし，左殻殻頂付近に歯状の突起を持つユキゾラマスオガイ（新称）*Dysmea occidens* (GMELIN) の2種があることが分かった．

スダレヨシガイ属 (*Kermadysmea* POWELL, 1958) は，これまでスダレマスオガイ（亜）属と呼ばれ，スダレマスオガイ及びスダレヨシガイの2種が置かれていた．しかしながら，スダレマスオガイは明瞭な歯丘を持つ点ではシオサザナミガイ科の特徴を有するが，殻の前後端に開口を欠き，右殻の前後側歯，斜め上方を向いた套線湾入を持つことから，ニッコウガイ科へ移し，新属スダレザクラガイ属 *Aenigmotellina* n. gen. を設けることを提唱する．これに伴い，*Kermadysmea* 属の和名をスダレマスオガイ属からスダレヨシガイ属へ改称する．スダレヨシガイはこれまで，ケルマデック諸島，沖縄群島及びレユニオンだけから知られている．半円を連ねたような輪肋を持った，シオサザナミガイ科の特異な二枚貝である．ケルマデック産，沖縄産の現生標本，並びに喜界島の更新統琉球石灰岩産標本を記載する．

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Plate 1

Figs. 1–3. *Gari* (*Grammatomya*) *squamosa* (LAMARCK, 1818).
NSMT-Mo64713, Ankyaba, Kakeromajima, Amami Islands; length 28.4 mm. 1–2: left valve. 3: inside view of right valve.
Figs. 4–7. *Dysmea oriens* (DESHAYES, 1845).
NSMT-Mo65152, Okinoshima, Kochi Prefecture; length 76.3 mm.
Figs. 8–9. *Aenigmotellina nishimurai* (HABE, 1976).
NSMT-Mo51904 (holotype), Kozushima, Izu Islands; length 20.0 mm.
Figs. 10–12. *Dysmea occidens* (GMELIN, 1791).
NSMT-Mo65155, "Celebes"; length 66.3 mm.

Plate 2

Figs. 1–7. *Gari* (*Grammatomya*) *pulcherrima pulcherrima* (DESHAYES, 1855).
1: NSMT-Mo64720, Amami Islands; length 32.0 mm. 2: NSMT-Mo64712, Folding Island, Honda Bay, Palawan, Philippines; length 27.4+ mm. 3–5: NSMT-Mo64711, Ko Phi Phi Le, Phuket, Thailand; length 30.7 mm. 6–7: NSMT-Mo63851, Oshima Strait, Amami Islands; length 31.9 mm.
Figs. 8–13. *Gari* (*Grammatomya*) *pulcherrima kurodai* (HABE, 1981).
8–9: NSMT-Mo64717, Kushimoto, Wakayama Prefecture; length 25.4 mm. 10–13: NSMT-Mo64719, Okinoshima, Kochi Prefecture; length 33.5 mm.

Plate 3

Figs. 1–11. *Kermadysmea galatheae* (POWELL, 1958).
1–2: NSMT-Mo64681, left valve, Pleistocene Ryukyu Limestone, Kamikatetsu, Kikaishima, Oshima-gun, Kagoshima Prefecture; length 36.2 mm. 3–4: NMNZ-MF26586, right valve, Kermadec Islands; length 43.6 mm. 5–6: NMNZ-MF 25424, left valve, Kermadec Islands; length 47.3 mm. 7–11: NSMT-Mo64680, Okinawa Prefecture, Japan; length 57.7 mm.

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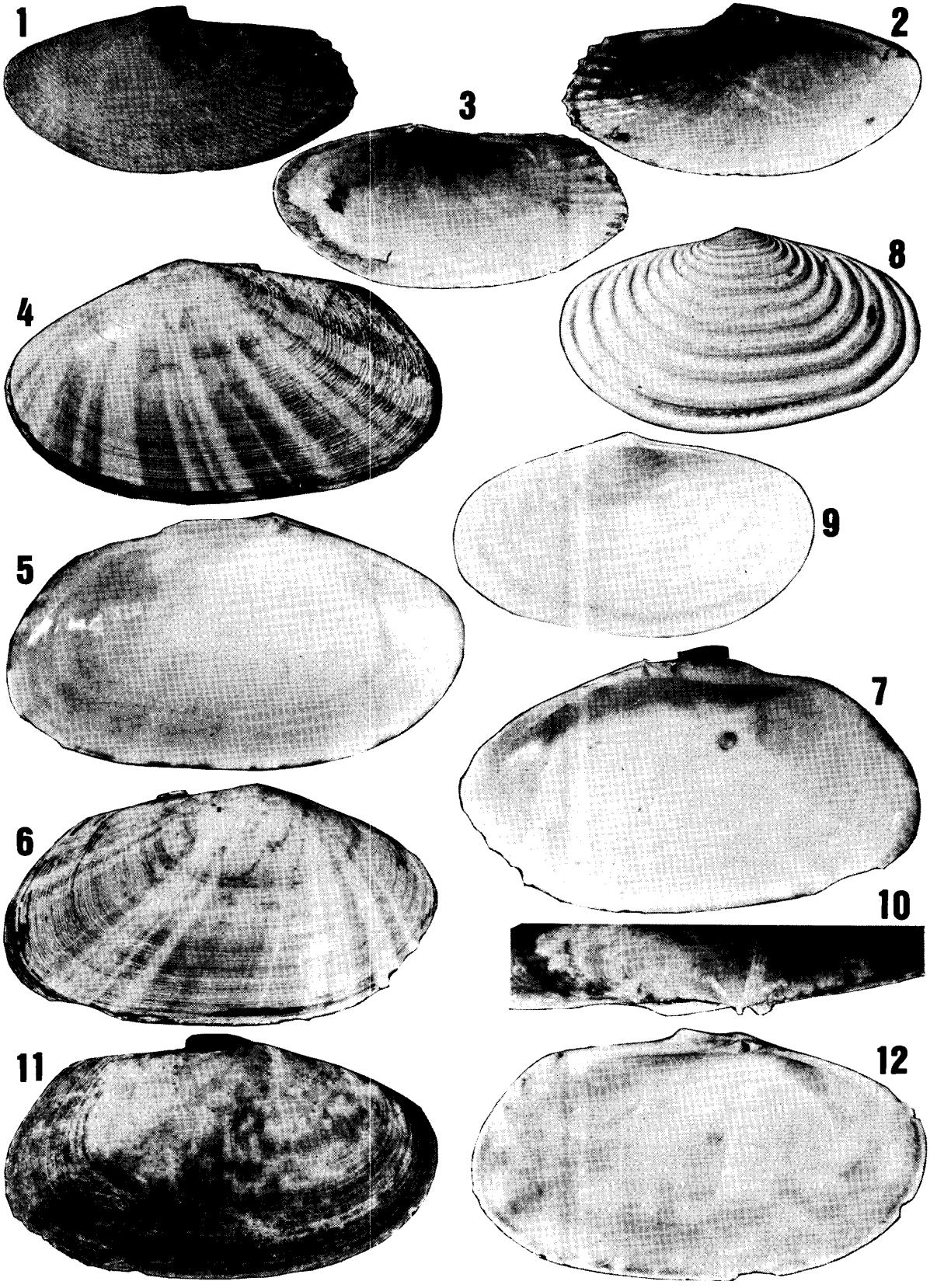

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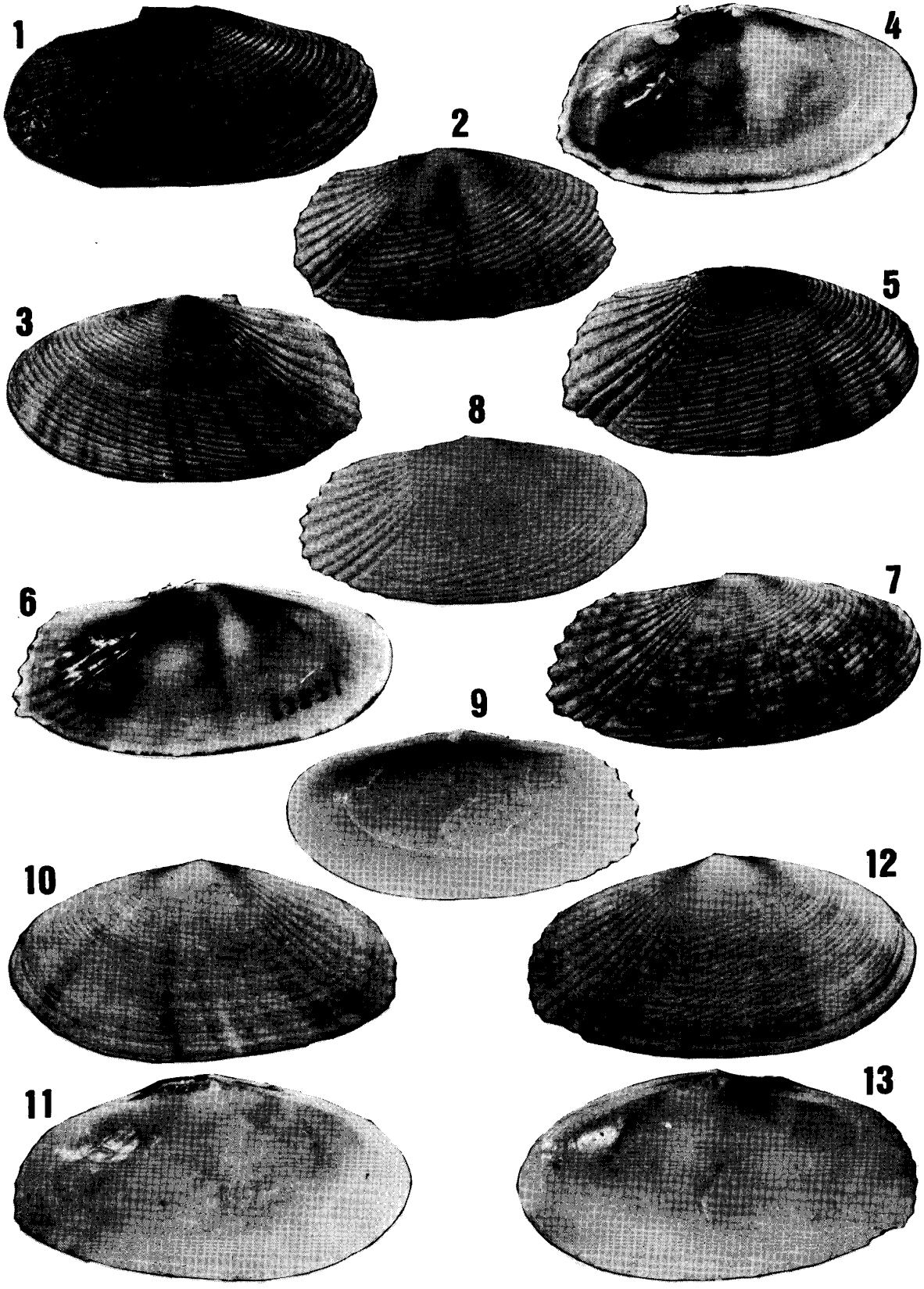

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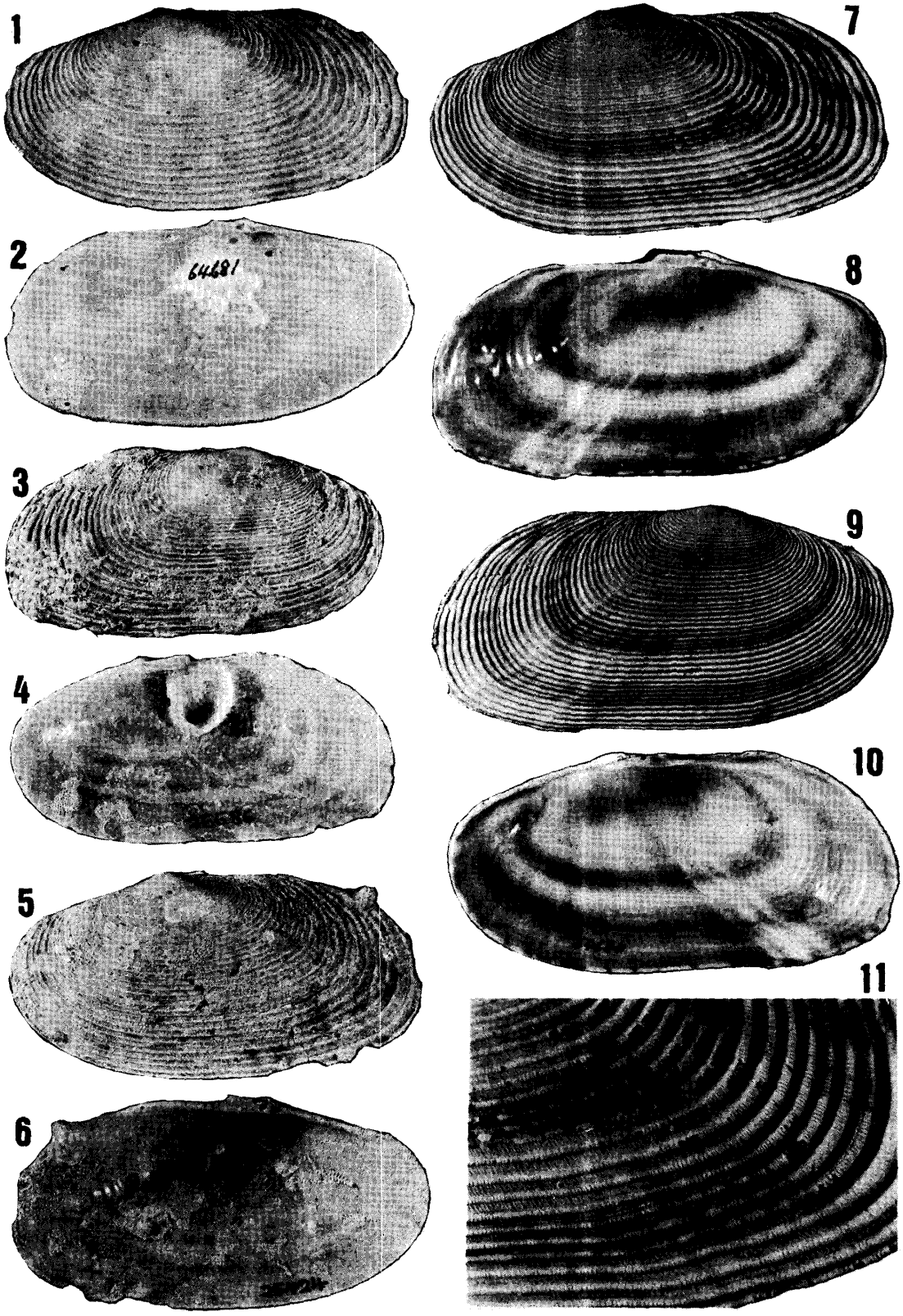

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